

Fig. S1 Al disposition in rats after single iv (circles) or po (triangles) administration of aqueous solutions containing Al citrate (filled symbols) and Al chloride (open symbols). Note the different time-scales on the three panels: hours (h), days (d) and weeks (w).

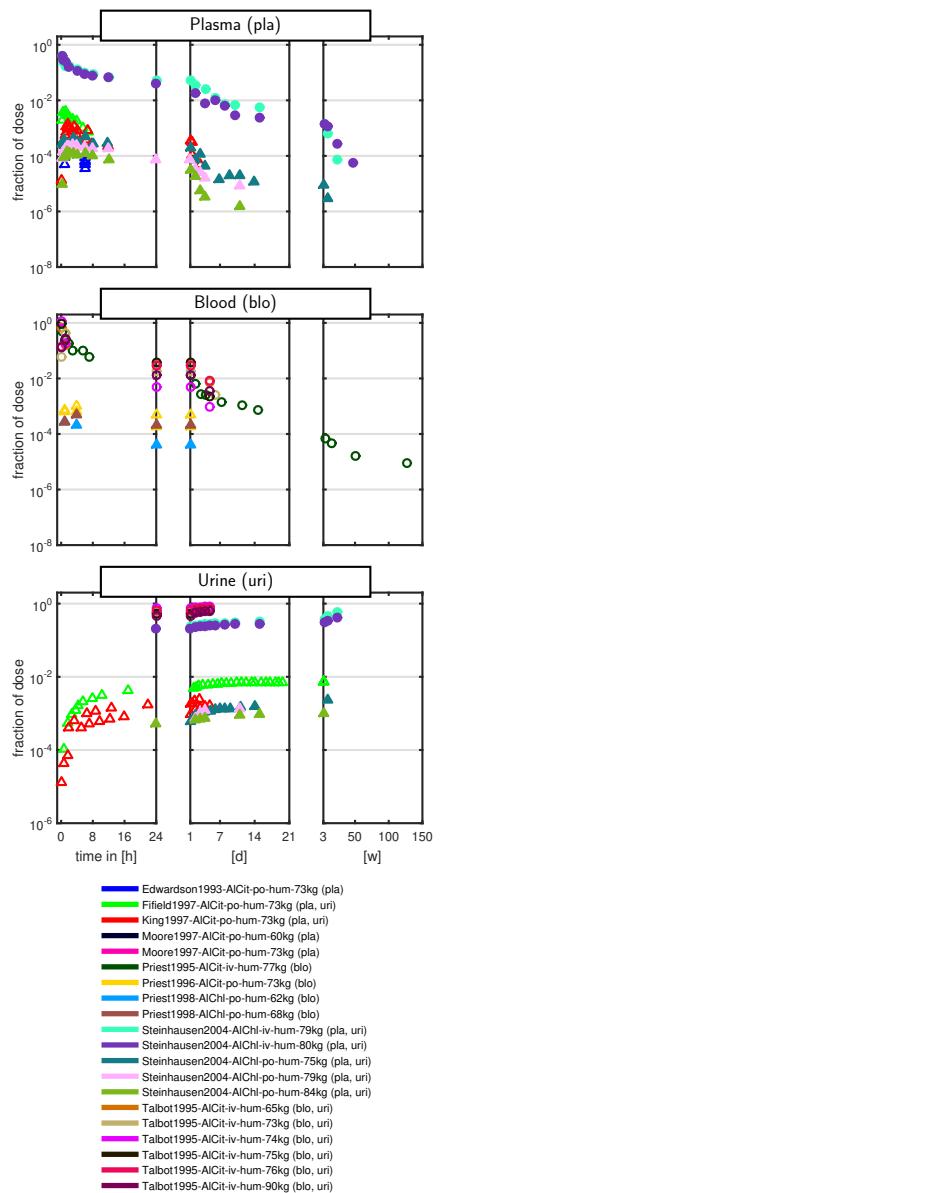


Fig. S2 Al disposition in humans after single iv (circles) or po (triangles) administration of aqueous solutions containing Al citrate (filled symbols) and Al chloride (open symbols). Note the different time-scales on the three panels: hours (h), days (d) and weeks (w).

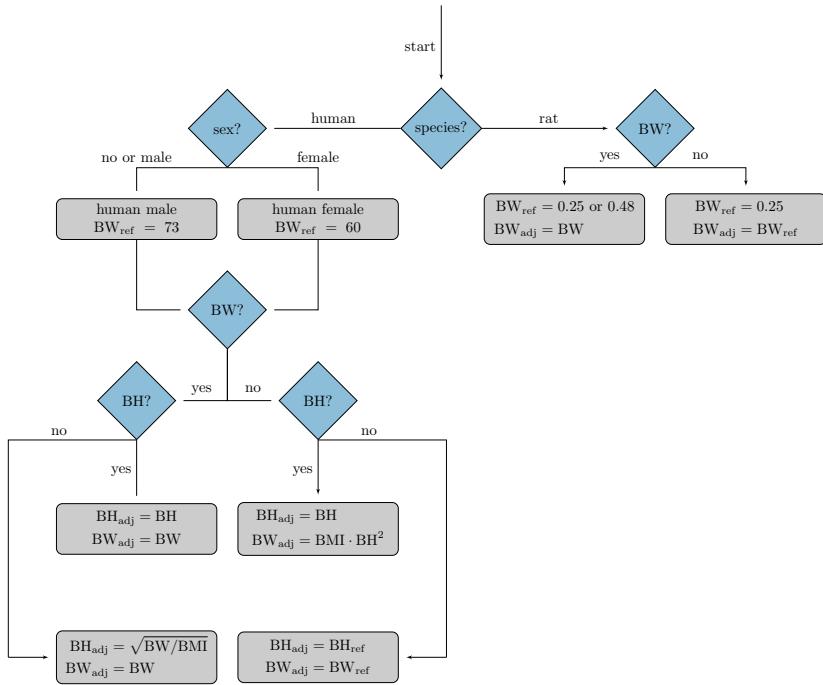


Fig. S3 Decision tree for missing data. For each identifier, physiological parameters were scaled based on reference individuals defined in the methods section of the main article. Questions refer to whether the variable was reported in the study or not. Young (0.25 kg) or old (0.48 kg) reference rats are chosen based on whichever is closest to the adjusted body weight (BW). For reference humans, additionally sex and body height (BH) determine this choice. If BW, BH and/or sex is not reported in the original study, imputation for these variables followed the depicted decision tree. For the human body mass index we assumed $BMI = 25 \text{ kg/m}^2$.

Table S1 References excluded from the curated dataset (human). Abbreviations: Duplicate (DUP), not included tissue (TIS), reserved for validation (VAL), not included chemical species (CHE), not included administration (ADM), not included unit (UNI), implausible time point $t < 1$ s (TIM), not included health status (HEA), implausible value $y \leq 0$ (CEN), not included special treatment (SPE), no reported variance (VAR). For tissue abbreviations see main article. While excluded from the curated dataset, these observations are part of the comprehensive dataset and may be inspected in the supplemental material.

Reference	Number of excluded samples and comment
(Day et al., 1991)	1 human AlCit po sample (pla) due to DUP (Edwardson et al., 1993)
(de Ligt et al., 2018)	130 human AlCit iv samples (blo) due to VAL
(de Ligt et al., 2018)	77 human AlCit iv samples (spot uri) due to VAL, TIS
(Flarend et al., 2001)	6 human AlCit dermal samples (pla) due to CHE (Al-Chlorohydrate), ADM, UNI (Fraction of applied Al / g)
(King et al., 1997)	2 human AlCit po samples (pla, uri) due to TIM
(King et al., 1997)	1 human AlCit po sample (uri) due to CEN
(King et al., 1997)	55 human AlCit po samples (pla-uri) due to SPE (added high silicate)
(King et al., 1997)	2 human AlCit po samples (pla-uri) due to SPE (added high silicate), TIM
(Moore et al., 1997)	5 human AlCit po samples (pla) due to HEA (tris21)
(Moore et al., 2000)	13 human AlCit po samples (pla) due to UNI (relative uptake factor)
(Moore et al., 2000)	13 human AlCit po samples (pla) due to HEA (Alzheimers), UNI (relative uptake factor)
(Nolte et al., 2001)	25 human AlCit iv samples (pla-uri) due to DUP (Priest et al., 1995)
(Nolte et al., 2001)	8 human AlCit iv samples (faeces) due to DUP (Priest et al., 1995), TIS
(Priest et al., 1996)	2 human AlCit po samples (blo) due to TIM
(Priest et al., 1996)	2 human AlHyd with AlCit po samples (blo) due to CHE (Al-Hydroxide), TIM
(Priest et al., 1996)	6 human AlHyd po samples (blo) due to CHE (Al-Hydroxide)
(Priest et al., 1996)	2 human AlHyd with AlCit samples (blo) due to CHE (Al-Hydroxide), TIM
(Priest et al., 1996)	6 human AlHyd with AlCit po samples (blo) due to CHE (Al-Hydroxide)
(Priest et al., 1998)	2 human AlChl po samples (blo) due to TIM
(Steinhausen et al., 2004)	57 human AlChl po samples (pla-uri) due to HEA (chronic glomerulonephritis)

Table S2 References excluded from the curated dataset (rats). Abbreviations: Duplicate (DUP), not included tissue (TIS), reserved for validation (VAL), not included chemical species (CHE), not included administration (ADM), not included unit (UNI), implausible time point $t < 1$ s (TIM), not included health status (HEA), implausible value $y \leq 0$ (CEN), not included special treatment (SPE), no reported variance (VAR). For tissue abbreviations see main article. While excluded from the curated dataset, these observations are part of the comprehensive dataset and may be inspected in the supplemental material.

Reference	Number of excluded samples and comment
(Beck, 1997)	58 rat AlChl iv samples (uri-serum-liv-spl-mus-bon) due to SPE (nephrectomized)
(Drueeke et al., 1997)	16 rat AlChl po samples (bon-uri) due to SPE (added high silicate)
(Drueeke et al., 1997)	16 rat AlChl po samples (bon-uri) due to SPE (added high silicate and citrate)
(Fink et al., 1994)	5 rat po samples (bra-greymatter-liv) due to CHE (unkown)
(Ittel et al., 1997)	30 rat AlChl po samples (serum-liv-bon-spl-uri) due to SPE (nephrectomized)
(Kobayashi et al., 1990)	15 rat AlChl ip samples (liv-bra-blo) due to ADM
(Meirav et al., 1990)	14 rat AlChl iv samples (serum-uri) due to DUP (Meirav et al., 1991)
(Meirav et al., 1991)	14 rat AlChl iv samples (serum-uri) due to SPE (nephrectomized)
(Schoenholzer et al., 1997)	6 rat AlCit po samples (pla-uri) due to VAR
(Schoenholzer et al., 1997)	7 rat AlCit with AlCit po samples (pla-uri) due to VAR
(Schoenholzer et al., 1997)	7 rat AlHyd po samples (pla-uri) due to VAR, CHE (Al-Hydroxide)
(Schoenholzer et al., 1997)	7 rat AlMal po samples (pla-uri) due to VAR, CHE (Al-Maltotate)
(Steinhausen et al., 1996)	12 rat AlChl iv samples (serum) due to DUP (Beck, 1997; Steinhausen et al., 2004)
(Steinhausen, 1997)	34 rat AlChl iv samples (serum-bon-uri-liv-spl-mus) due to DUP (Beck, 1997; Steinhausen et al., 2004)
(Steinhausen, 1997)	27 rat AlChl iv samples (serum-bon-uri-liv-spl-mus) due to DUP (Beck, 1997; Steinhausen et al., 2004), SPE (nephrectomized)
(Steinhausen, 1997)	5 rat AlChl po samples (serum-uri-liv-spl-bon) due to DUP (Beck, 1997; Steinhausen et al., 2004)
(Steinhausen, 1997)	5 rat AlChl po samples (serum-uri-liv-spl-bon) due to DUP (Winklhofer et al., 2000)
(Steinhausen, 1997)	5 rat AlChl po samples (serum-uri-liv-spl-bon) due to DUP (Winklhofer et al., 2000), SPE (iron deficient diet)
(Steinhausen, 1997)	5 rat AlChl po samples (serum-uri-liv-spl-bon) due to DUP (Winklhofer et al., 2000), SPE (iron saturated diet)
(Steinhausen, 1997)	5 rat AlChl po samples (serum-uri-liv-spl-bon) due to DUP (Beck, 1997; Steinhausen et al., 2004), SPE (nephrectomized)

Table S3 References excluded from the curated dataset (rats); continuation of Table S2. Abbreviations: Duplicate (DUP), not included tissue (TIS), reserved for validation (VAL), not included chemical species (CHE), not included administration (ADM), not included unit (UNI), implausible time point $t < 1$ s (TIM), not included health status (HEA), implausible value $y \leq 0$ (CEN), not included special treatment (SPE), no reported variance (VAR). For tissue abbreviations see main article. While excluded from the curated dataset, these observations are part of the comprehensive dataset and may be inspected in the supplemental material.

Reference	Number of excluded samples and comment
(Walker and Sutton, 1994)	1 rat AlChl iv sample (heart) due to TIS
(Walker and Sutton, 1994)	5 rat AlChl iv samples (bon-kid-liv-bra-mus) due to SPE (nephrectomized)
(Walker and Sutton, 1994)	1 rat AlChl iv sample (heart) due to SPE (nephrectomized), TIS
(Walton et al., 1995)	8 rat po samples (bra) due to CHE (unknown)
(Winklhofer et al., 2000)	48 rat AlChl po samples (uri-bon-spl-liv-pla) due to SPE (iron deficient diet)
(Winklhofer et al., 2000)	44 rat AlChl po samples (uri-bon-spl-liv-pla) due to SPE (iron saturated diet)
(Yokel et al., 2001b)	60 rat AlTf iv samples (bra-serum) due to CHE (Al-Transferrin)
(Yokel et al., 2001b)	30 rat AlTf iv samples (bra) due to CHE (Al-Transferrin), SPE (added desferrioxamine)
(Yokel and Florence, 2006)	16 rat AlHyd po samples (serum) due to CHE (Al-Hydroxide)
(Yokel et al., 2008)	16 rat AlSal po samples (serum) due to CHE (Al-sodium-phosphate)
(Yokel and Florence, 2008)	8 rat AlCit po samples (serum) due to VAR
(Yokel and Florence, 2008)	8 rat AlTea po samples (serum) due to no number of replicates, CHE (AlCit in tea)
(Yumoto et al., 1997)	24 rat AlChl ip samples (blo-bra-liv) due to ADM (intraperitoneal)
(Yumoto et al., 2000)	9 rat AlChl lac samples (kid-liv-bra-blo) due to ADM (lactation)
(Yumoto et al., 2000)	1 rat AlChl sc sample (liv) due to ADM (subcutaneous)
(Yumoto et al., 2000)	2 rat AlChl sc samples (placenta-fetuses) due to ADM (subcutaneous), TIS
(Zafar et al., 1997)	24 rat AlChl ip samples (spl-liv-kid-bon-blo) due to ADM (intraperitoneal)
(Zhou et al., 2008)	49 rat AlMal po samples (serum) due to CHE (Al-Maltotate)

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